

REMARKS

Applicant has added new claim 11 without amending any other claim 5. Claims 5-10 are allowed.

Claims 1-4 have been rejected under 35 USC 103(a) as unpatentable over U.S. Patent No. 6,259,039 (Chronos) in view of U.S. Patent No. 6,780,251 (Tometsuka). Applicant notes that claim 2 was cancelled in the Amendment filed August 30, 2005 and thus is no longer pending in this application. Applicant respectfully traverses the rejection of claims 1, 3 and 4.

Claim 1 recites suspending the semiconductor wafer on a plurality of pins in a reflow furnace so that the metal portions are positioned upwardly in the reflow furnace. In Appellant's Opening Brief filed May 4, 2006, applicant explained that Chronos does not teach or suggest the claimed suspension of the semiconductor wafer on a plurality of pins in a reflow furnace, because Chronos's carrier 102 made of a FR4 laminate material does not correspond to the claimed semiconductor wafer.

In response to this argument, the Examiner reopened prosecution and stated that applicant's arguments were persuasive. See paragraph 1 of the Action. However, the Examiner contends in paragraph 2 of the Action:

Tometsuka, in related text, (col. 10, line 64 through col. 11, line 8) discloses the substrate is a semiconductor wafer (see figs. 6A-6B) but it could be formed of PCB materials. It would have been obvious to one of ordinary skill in the art at the time of the invention was made for having the substitute as taught by Tometsuka in process for fabrication of Chronos, Jr. since the material such as PCB/semiconductor is recognized equivalent material for forming the substrate in a reflow process for manufacturing a semiconductor device.

The premise of the Examiner's argument is that Tometsuka discloses that a printed circuit board is a device equivalent of a semiconductor wafer for the purpose of making a semiconductor device.

This premise is flawed. The relevant portion of the passage of Tometsuka cited by the Examiner states:

Though the wafer is processed in the preferred embodiment, a subject substrate to be processed is not limited to the wafer but may be a photo-mask, a printed circuit board, a liquid crystal panel, a compact disc, or a magnetic disc.

What Tometsuka discloses in this passage is that Tometsuka's vertical hot-wall type batch heat treatment apparatus may be used to perform heat treatment on device elements other than the semiconductor wafer such as a printed circuit board. Nothing in Tometsuka's teaches or suggests that a printed circuit board is a device equivalent of a semiconductor wafer for the purpose of making a semiconductor device as the Examiner contends. If the Examiner's argument were valid, a liquid crystal panel or a compact disc would have to be a device equivalent of a semiconductor wafer for the purpose of making a semiconductor device. Persons of ordinary skill in the art would have known that this is not the case.

Because Tometsuka does not teach or suggest that a printed circuit board is a device equivalent of a semiconductor wafer or that such equivalence makes the invention obvious, the Examiner's argument fails. The rejection of claims 1, 3 and 4 under 35 USC 103(a) over Chroneos and Tometsuka should be withdrawn because they do not teach or suggest the claimed invention as a whole.

New claim 11 recites removing the semiconductor wafer from the pins after the reflow of the metal portions. This claim finds support, for example, at page 10, lines 25-27, of the specification. Applicant notes that Chroneos's pins 116 are soldered into Chroneos's carrier 102 and are not detachable from the carrier, contrary to the claim language. See column 3, lines 18-32, of Chroneos.

In light of the above, a Notice of Allowance is solicited.

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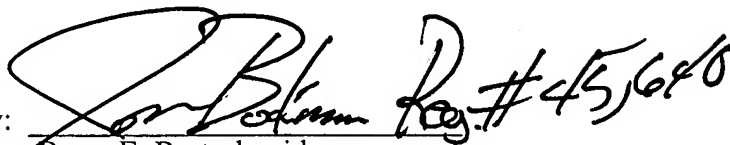
the cost of such petitions and/or other fees due in connection with the filing of this document to

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Respectfully submitted,

Dated: October 23, 2006

By:

A handwritten signature in black ink, appearing to read "Barry E. Bretschneider", followed by the handwritten text "Reg. # 45,680".

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